

**Response to comments regarding:
Assessment of Economic Impacts of Proposed DPR Regulation of Methyl Bromide
Field Fumigation (DPR-03-004)**

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Summary of Findings

In July, 2003, an economic analysis of the regulation proposed by the Department of Pesticide Regulation (DPR) was prepared by the Cal/EPA Agencywide Economic Analysis Unit (AWEAU). This analysis was the most recent in a series of impact assessments of proposed Methyl Bromide regulations, and focused on the regulation of 2003. At that time, the analysis focused on the economic impacts of the regulation proposed by DPR making permanent the current emergency regulation pertaining to field fumigations using methyl bromide (DPR-03-004).

It was determined that the most significant cost of the proposed regulation were incurred as a result of the implementation of new requirements that the entire field crew use compliant chemical cartridge respirators, and that a pair of cartridges can only be used on one spray period, for a maximum of eight hours. The annual cost of this provision were estimated to be \$539,000. It was also stated that additional monitoring activities would result in some additional staff time to the county agricultural commissioners (CAC), but this related fiscal cost has not been estimated.

The economic impact to the agricultural sector was expected to occur primarily to strawberry growers in four counties: Monterey, Ventura, Santa Barbara and Santa Cruz. About 45% of the applications of methyl bromide are prior to planting strawberries. Other crops include lettuce, peppers and some vine crops. Although the large majority of the application of methyl bromide as a pre-plant fumigant is performed by two commercial application firms, it was assumed that the average increased cost, representing \$10.61 per treated acre, would be passed on to the growers.

A prior analysis done by AWEAU in September, 2002, pointed out that vegetable crops generally require higher capital investment, and strawberries require more investment than most vegetables. For strawberries, cultural costs alone are approximately \$8500 per acre, with \$1700 of this amount required for fumigation. The average cost of growing an acre of strawberries is in excess of \$20,000. The additional cost for the proposed required respirators, although significant on an annual statewide basis, is a small part of the total cost of growing strawberries.

The comments submitted to DPR regarding the Methyl Bromide regulations, submitted by various respondents in November and December of 2003, are directed toward economic impact assessments made during 2002, and not to the most recent analysis done by

AWEAU. The three analyses refer variously to “total annual costs” to the strawberry industry, as a result of the Methyl Bromide regulation, of \$16 million to \$21 million dollars. These numbers are quoted from the study by Colin Carter et.al., in June, 2002.

This study also cited the historical use of Methyl Bromide from the DPR's pesticide use report summary. These numbers are presented in the Table 1, below. The data from the years 1996 through 2000 was presented in the original report. I have added the subsequent data for 2001 and 2002.

TABLE 1: Methyl Bromide use in California Strawberry Production

year	MeBr applied in Calif. (lbs.)	MeBr applied to strawberries (lbs.)	strawberry share of MeBr usage	Total Calif. strawberry acreage using Mebr	Lbs. MeBr applied per acre of strawberries
1996	16,022,069	4,383,611	27%	21,345	205
1997	15,663,832	4,050,264	26%	21,746	186
1998	13,569,875	4,257,364	31%	20,291	210
1999	15,342,080	5,175,568	34%	25,493	203
2000	10,862,836	4,234,905	39%	22,580	188
2001	6,615,844	3,777,550	57%	22,241	170
2002	6,594,515	3,706,589	56%	20,501	181

The table clearly shows that the use of methyl bromide in California was reduced significantly at the end of 2000. However, the strawberry acreage that this pesticide was applied to did not decline significantly, although the pounds applied per acre was reduced slightly. There was a sharp decline in the use of methyl bromide on crops other than strawberries and greenhouse fumigation. It has not been determined what the economic effect is upon the production of these other crops.

The following Table 2 shows the yield and revenue for the statewide production of strawberries. Again, the original data presented in the 2002 report is augmented with the more recent data.

TABLE 2: Value of California Strawberry Crop, 1996 - 2002

year	acres (‘000)	Production (billion lbs.)	Yield		Frozen Value (M\$)	TOTAL farm Value (M\$)	value per acre
			(thousand lbs. per acre)	Fresh Value (M\$)			
1996	25.3	13.6	537.55	524.4	60.4	584.9	\$ 23,119
1997	22.6	13.3	588.50	590.5	95.9	686.4	\$ 30,372
1998	24.2	13.6	561.98	624.2	132.6	756.8	\$ 31,273
1999	24.6	15.1	613.82	718.7	157.5	876.2	\$ 35,618
2000	27.6	15.2	550.72	674.7	92.6	767.3	\$ 27,801
2001	25.1	12.7	505.98	709.1	96.7	805.8	\$ 32,104
2002	27.3	15.3	560.44	771.7	90.5	862.2	\$ 31,582
2003	28.2 (est)						

The 2001 crop would have had methyl bromide applied to the soil at the end of 2000, so this crop would have been produced according to the prior regulations pertaining to the

use of methyl bromide. The relevant data is the total production and total revenue for 2002. The total acreage was nearly at an all-time high, as was the revenue per acre. There seems to be no significant impact of the new methyl bromide regulations upon the production and revenue of the strawberry crop in California.

There is an issue with regard to the impact of the new regulations upon the profitability of the crop. That is, the per-cost of production would be increased. If, as stated in the Comments, the total cost of the methyl bromide regulation were about \$21 million per year, then the cost of producing an acre of strawberries would be increased by approximately \$930 per acre (\$21 million divided by 21,500 acres where methyl bromide was applied).

It was stated in the report of July 2003, that the cultural costs of producing an acre of strawberries is about \$17,000. Judging by the long-term gross revenue per acre, the total per-acre costs would be approximately \$25,000. Thus, a potential increase of \$930 per acre, as derived from the statements in the comments, would represent a significant cost increase – over 3.7% of the historic per-acre cost. Since normal operating margins in agricultural crop production average around 5%, an increase of 3.7% would represent two-thirds of the potential profit margin on the crop.

A production cost increase of this magnitude, if it were to actually occur, would result in a significant reduction in the production of any crop. However, such a decrease in production has not occurred. Therefore, there seems to be little evidence for a large cost increase to have actually occurred.

One final point that was made in the comments also requires some additional discussion. The issue of inter-state competitiveness was raised. Specifically, it was suggested that the new methyl bromide regulations placed California growers of strawberries at a disadvantage vis-a-vis growers from other states. The response to this argument should be based on the data presented in Table 3, below. This data is from the 5-year U.S. Census of Agriculture, and shows relative acreage of strawberries for two calendar years, 1997 and 2002. These are the two most recent years available for comparison.

TABLE 3: Strawberry acreage and production

	1997		2002		% chg, '97 to 2002	
	no. farms	acres	no. farms	acres	no. farms	acres
California, Total	882	28,381	684	32,185	-22%	13%
0.1 to 14.9 acres	590	1,899	331	1,093	-44%	-42%
15 to 49.9 acres	144	3,867	155	4,344	8%	12%
50 to 99.9 acres	67	4,806	95	6,737	42%	40%
100 acres or more	81	17,809	103	20,011	27%	12%
Other States, Total	7,156	27,366	6,115	23,681	-15%	-13%
0.1 to 14.9 acres	6,797	13,923	5,839	11,347	-14%	-19%
15 to 49.9 acres	284	6,954	220	5,665	-23%	-19%
50 to 99.9 acres	59	3,858	31	2,062	-47%	-47%
100 acres or more	16	2,631	25	4,607	56%	75%

Source: 2002 U.S. Census of Agriculture, published June, 2004

Several important trends are evident in the five-year comparison of strawberry production in the United States:

- The number of California strawberry farms decreased 22% while the acreage increased 13%.
- The number of Other States strawberry farms decreased 15%, and the acreage also decreased 13%.
- Declines in numbers of farms in Other States occurred in all but the largest size category, while in California only the smallest category exhibited a decline in numbers.
- California's share of the U.S. strawberry acreage increased, from 51% to 58%.

The most important fact demonstrated by the Census comparison is that California's strawberry production is subject to the same decline in small-acreage production seen in the rest of the country, but that California's farms are able to maintain and even expand their share of total production. In short, California's strawberry growers are competing successfully in the national market.